

PUBLIC HEALTH REPORT

Louis F. Saylor, M.D., M.P.H., Director, State Department of Public Health

Air Pollution, Health Effects and Urban Growth

AIR POLLUTION REPRESENTS a serious public health problem in California, and the state has taken a paramount role in studying it. Since 1954 the State Department of Public Health has conducted research on the effects of air pollution on health, and the application of such research to determine what upper limits need to be imposed on pollutants to protect the public health. The first scientifically supported air quality standards in the nation were developed by the department in 1959; and the first air quality standards of the nation, recently announced by the National Environmental Protection Agency, are similar to California's new standards, which themselves are based on the department's recommendations.

Air quality standards are of two types, one based on health preservation and the other on esthetic values and the protection of property. Most of the state and federal standards are based on health considerations. The staff of the State Department of Public Health has investigated, among other health reactions, the effects of oxidants on asthma¹ and lung function² and has carried out research on the body burdens of lead³ and carbon monoxide⁴ and their implications for health. In recent years, 1969 and 1970, the department has undertaken a major review of research in setting standards in conjunction with

the California Air Resources Board. In this work the department has used the advice and support of many experts in this field.

At the start of the efforts toward air pollution control, we did not know how much reduction in per capita pollution was possible or likely. Recently, however, the Technical Advisory Committee to the Air Resources Board made a detailed investigation as to the likelihood of achieving established air quality standards.

The committee reports that in some parts of the state air pollution standards cannot be achieved by applying technical methods available now or in the foreseeable future *if present growth trends continue*. We do not know how to control pollutant emissions enough to reach these standards. Therefore, if reduction in pollutants acceptable from the health viewpoint are to be reached or maintained, major changes in air pollution control plans must be made. This is true in some of the state air basins because of the size and growth rate of the population and the number of emission sources.

For example, the Technical Advisory Committee states that although the recommended hourly average oxidant standard for Los Angeles is 0.1 parts per million (ppm), and the federal law requires that federal air quality standards, 0.08 ppm, be met by May 1975 throughout the nation, the values will probably not, with present and planned controls, be below 0.25 to 0.35 ppm by 1980. Even by 1985 the oxidant level in Los Angeles will probably remain as high as 0.20 to 0.25.

The committee further suggests that it will not be possible to reach the oxidant standard of 0.1 ppm in Los Angeles by programs designed only to limit emissions from sources now anticipated on the basis of existing growth patterns. More drastic measures are needed, involving limiting the number and use of automobiles, trucks and

aircraft in the air basin and reducing emissions from these sources to levels below those now proposed. It would also be necessary to establish emission-free industries and fossil-fuel power plants, to develop a non-polluting urban transport system, and to limit population growth by restricting subdivision and residential expansion in the basin. Otherwise, people will continue to be exposed to oxidant levels which will have deleterious effects on their health. Some are even more concerned with the present health effects of carbon monoxide. For example, a State Health Department study based on daily mortality figures for Los Angeles for a four-year period from January 1 1962 through December 31 1965⁵ showed that carbon monoxide in concentrations encountered in Los Angeles, was associated with a small but significant contribution to daily death rates.

What, then, can be done to reduce health hazards from air pollution?

Any such efforts include three components. One is the short-range, immediate "air pollution health warning system," which warns the population, especially persons susceptible to respiratory disease, of hazards during a severe pollution episode. This program is carried out with the cooperation of local physicians and health officers in conjunction with the appropriate committees of the California Medical Association.

The second is a continuing effort to apply forcefully and diligently available technologic knowl-

edge to reduce emissions from all sources of air pollution to the maximum feasible extent.

As the Air Resources Board Technical Advisory Committee has made clear, however, technology alone without significant changes in our mode of life will not provide air of sufficient purity to avoid deleterious effects on health. Accordingly, a third component must be long-range community planning which considers the number and sources of pollutant emissions and, by inference, the population of an air basin, along with the amount of pollution from each source. Communities should develop long-range policies for land use, power generation, transportation, and limitations on population density which would prevent pollution and which would result in other desirable health effects as well. The State Department of Public Health will encourage and support such efforts, and hereby goes on record as being opposed to developments that would increase air pollution loadings in our critical air basins.

REFERENCES

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EYEBROW PULLING IN CHILDREN

How do you manage an otherwise normal ten-year-old boy who picks out his eyebrows and lashes?

"This is a habit, and there are lots of habits that we get very concerned about. We used to get very concerned about thumbsucking; and we used to get concerned about nail biting . . . until somebody did a survey and found that 80 percent of all children go through a period of nail biting during their growing up. Ten years old is also the age when you will see tics in children. Most of these habits are self-limited. The important part is the family's response. The more upset the family gets about this the more likely there is to be a long-range problem. It becomes a vicious circle. The suggestion to the child that he do it only in his own room and not in public might be one way to minimize the family's reaction. I think that in 99 out of 100 cases this habit will come to an end all by itself."

—HANS R. HUESSY, M.D., Burlington
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